

# SMART: Enabling Technology Transfer

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# A Promising Future

## **We Are....**

- Maintaining a **Vision** of Where We Are Going
- Transforming to an **Information Age Army**
- **Partnering** With Industry
- Always Focusing on the **Warfighter's Needs**
- Finding Solutions from a **Total Army Perspective**

**Window of Opportunity to Embark on a Reasoned, Disciplined, Deliberate Course of Change to Achieve Greater Leverage of Modeling & Simulation Technologies Leading to Modernized Equipment that**

**Best Serves the Soldier**



# ...Path to the Future

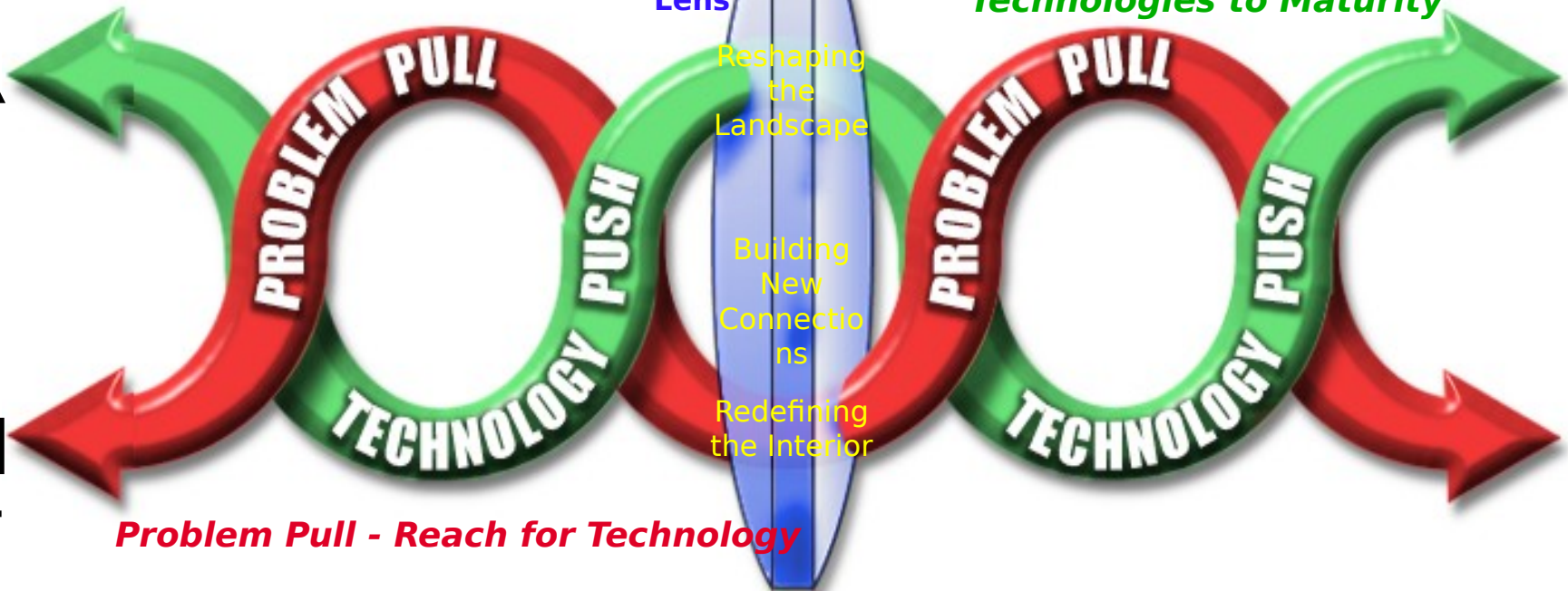
## **Digital Strategy Development Begins With Technology!**

Digital Strategy  
Design Principal  
Lens

**Technology Push - Immature  
Technologies to Maturity**

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**Problem Pull - Reach for Technology**

**Virtuous Cycle = Technology Push & Problem Pull Operating Together - Processes Become Indistinguishable**

\*From the book "Unleashing the Killer App" by Larry Downes/Chunka Mui

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# Technology Transfer...

## ***... It's All About Context***

- **Ivory Tower**
- **Not Invented Here**
- **Lack of Visibility**

**“Context is Worth 50 IQ Points”**

*Alan Kay, Walt Disney Imagineering Fellow*





# **We Can Do Better...**

## **The Army is Moving into the Digital Age:**

***Ideas, concepts and information will be  
represented and exchanged via electronic***

***Analysis Division***



# Industry/Government Challenge:

## Field modernized equipment characterized

- **Reduced Total Ownership Cost (TOC), Time to Initial Operating Capability (IOC), and Logistics Tail**
- **Increased Supportability, Maintainability, and Military Worth**
- **More Effective, Cost Efficient Training at Individual, Crew, and System Level**







# Simulation and Modeling for Acquisition, Requirements and Training (SMART)



**SMART is a process in which we capitalize on Modeling and Simulation (M&S) technology to address the issue of system development and life-cycle costs through the combined efforts of the requirements, training and acquisition communities.**



# If a Picture is Worth a Thousand Words

...

## ***... What is a Simulation Worth?***

### **Simulations Address:**

- **Detail Complexity - Multiple Components**
- **Dynamic Complexity - Cause and Effect With Regard to Time and Space**

**"If a picture is worth a thousand words, then a digital simulation is worth a thousand pictures!"**

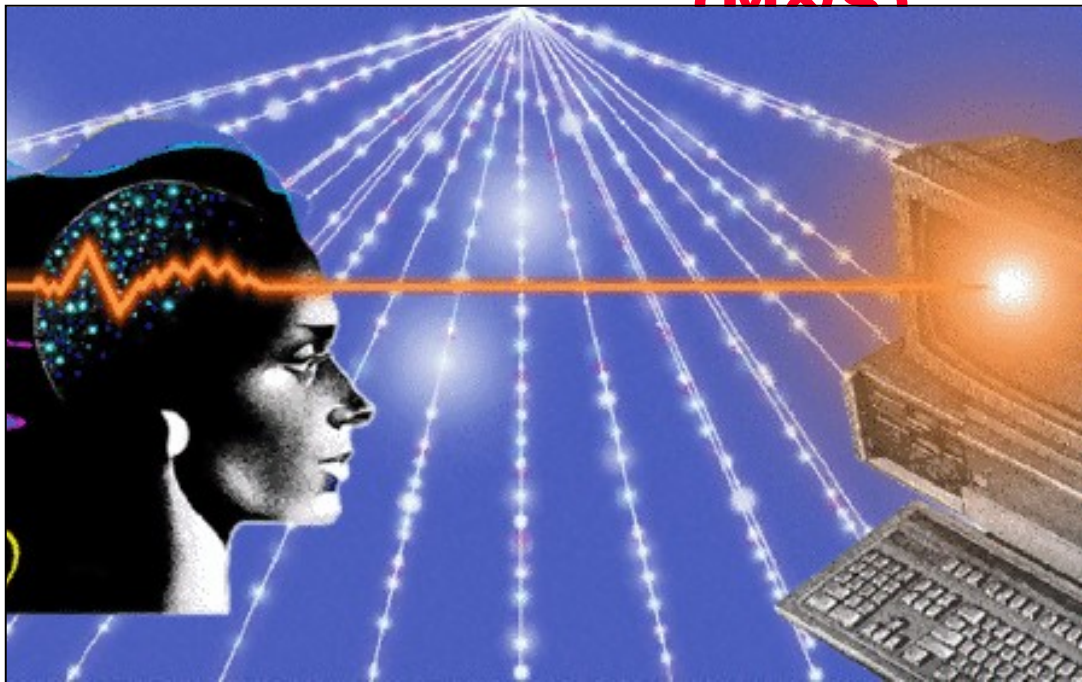
***Paul J. Hoeper, ASA(ALT)***





# Acquisition in Bits

**Medium of digital information exchange in acquisition will be in Models and Simulations (M&S)**



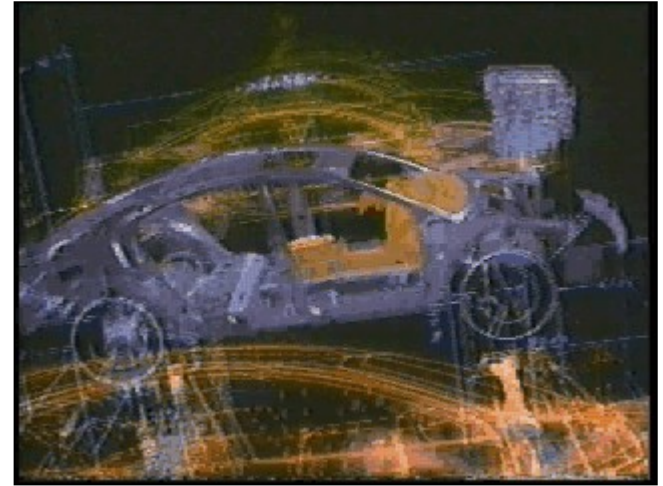
- **Human Brain can integrate no more than 7-9 unrelated concepts**
- **For 81 items interacting w/ each other... 6,480 possible interactions to integrate**

**M&S provide the tools for evaluating complex systems with numerous sub-components and interactions**



# SMART Enables the Digital Acquisition Corps

- **SMART Enables the Acquisition Workforce to Depict System Design Alternatives Digitally and Provide Access to all System Stakeholders**
- **Distributed Access to Developing Digital Design Allows Assessment of Proposed Changes for Impacts to all Acquisition Functions**
- **System Design Evolves With Optimization Across all Functions Vice at the Expense of one Another**





# What is the Role of the Requirements Community?

- **Provide Continuous User Context**
- **Cost/Performance Tradeoff Analysis**
- **Early ID of Unrealistic Requirements**
- **Early ID of Enabling Technologies**
- **Earlier Opportunity to Address Life Cycle Cost**
- **Use Virtual Prototypes to aid Threat Assessment & Mission Area Analysis**







# What is the Role of the Training Community?

- **Provide Early and Continuous Training Context**
- **Assess Impact of TTP and Doctrine on Design Concepts**
- **Trained Crew Simultaneous w/ 1st Unit off Production Line**
- **Re-use of Software and Simulation to Support Embedded and Distributed Training, Operation Planning, Course of Action (COA) Analysis; Part of Deployed Capability**





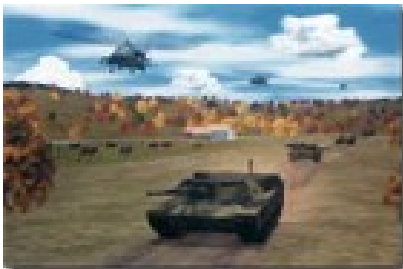
# SMART Flagship Programs

- **Crusader Program Operates Within a Digital Integrated Environment That Digitally Links the PMO, Contractor, TARDEC, Assorted Test Ranges, and Other Activities**



- **Apache Poised to Re-assess Basic Load, Capitalize on PIPs to Re-engineer Logistic Support**

- **FSCS Ideally Poised to Benefit From SMART and Pit Stop Engineering**



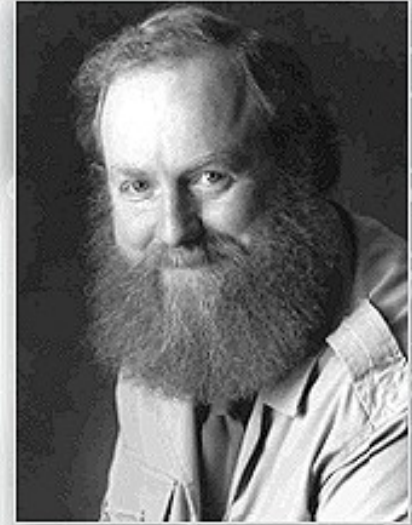
- **CCTT can be Employed to Explore Doctrine and TTP for Future Systems to Influence Final Design**



# What's the “Big Idea”?



*“There are 2 types of people;  
Requirements  
people and “Big Idea” people.  
Requirements  
people like to deal in deliberate  
detail, while  
“Big Idea” people start with a  
general vision*



Bran Ferren,  
Executive VP for Creative  
Technology  
Walt Disney Imagineering





# Leveraging the “Big Idea”

- **Build a Little, Test a Little**
- **Strike a Balance Between Specifics and Creative Ingenuity**
- **Stakeholders Look Over Each Other’s Shoulders Electronically**
- **Collaboration Takes Place Through Manipulation of Electrons Instead of Atoms**





# How Do We Make It All Happen?

- **Break Some China/Crack Some Rice Bowls**
- **Will Require all of us to Bend a Little**
- **Acquisition, Requirements and Training Communities Need to Start Making Demands of Leadership and Functional Areas**
  - **Support in Developing Collaborative Environment**
  - **Support in Developing/Adopting Data Interchange Standards**
  - **Leverage Commercial Efforts, Tools, & Technologies**
  - **Deliver Common Synthetic Environment**
  - **Deliver Common Synthetic Threats**
- **Develop and Use Cost Effective Standards That Support:**
  - **Re-use, Commonality, Interoperability, and Credibility**